UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,502	03/07/2002	Yong Che	220305US0	8897

22850 7590 02/17/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
ALEJANDRO, RAYMOND	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action	Application No.	Applicant(s)
	10/091,502	CHE ET AL.
	Examiner	Art Unit
	Raymond Alejandro	1745

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 09 January 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will not be entered because:

   (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);

   (b) ☐ they raise the issue of new matter (see Note below);

   (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

   (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.

4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

5. ☒ The a)☐ affidavit, b)☐ exhibit, or c)☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: *see next page*.

6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

7. ☒ For purposes of Appeal, the proposed amendment(s) a)☐ will not be entered or b)☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:

   Claim(s) allowed: _____.

   Claim(s) objected to: _____.

   Claim(s) rejected: *1-16*.

   Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a)☐ approved or b)☐ disapproved by the Examiner.

9. ☐ Note the attached Information Disclosure Statement(s)(PTO-1449) Paper No(s). _____.

10. ☐ Other: _____

Response to Arguments

1. Applicant's arguments filed 01/09/04 have been fully considered but they are not persuasive.

2. In response to applicant's argument that the density of the negative electrode is a result-effective variable, the examiner likes to contend that as set forth in ***MPEP 2144.05 Obviousness of Ranges, II. Optimization of Ranges, B. Only Result-Effective Variables Can Be Optimized***: a particular parameter must first be recognized as a result-effective variable in the prior art, i.e. a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In this case, applicant's argument basically agrees with the fact the negative electrode density should not be considered a result-effective variable at all. For example, applicants argued that: a) "*in effect, applicants discovered that the density of the negative electrode is a result-effective variable that affects both the initial capacity and the change in capacity*" (see page 3, lines 5-7 of the Request for Reconsideration After Final); b) "*as described above, none of the other applied references describe the density of the negative electrode material, and therefore fail to recognize that the negative electrode density is result-effective in a secondary power source*" (see page 5, lines 13-18 of the Request for Reconsideration After Final). Thus, since applicants share the same opinion that the prior art failed to recognize the negative electrode density is a result-effective variable, it is therefore noted that the negative electrode density does not impart criticality in the secondary power source and, hence it is not supportive of patentable subject matter.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the

teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). *In this case, the disclosures of both references are found to be within the same field of endeavor and, thus, relevant to each other because the battery environment disclosed in both references is fairly comparable, namely, both reference are directed to batteries or electrochemical cells having organic electrolyte systems. Furthermore, the examiner wishes to point out that the electrode of the prior art performs exactly the identical function specified in the instant claim in substantially the same way, and produces the substantially the same results as the claimed electrode of the present invention. Consequently, a person of ordinary skill in the art would have recognized the interchangeability of the element (i.e. the negative electrode) shown in the prior art for the corresponding element claimed in the instant invention. Since there are insubstantial differences between the negative electrode of the prior art and the claimed negative electrode, the burden is shifted to the applicant to provide objective evidence demonstrating that Honbos' negative electrode when used as applied in the battery of Kuruma et al will indeed cause detrimental effects thereto.*

As to the superior performance characteristics of the secondary power sources presented in Table 1 (Examples 1-7), the examiner likes to contend that such results and, thus, the specific power sources as prepared in EXAMPLES 1-7 are *not commensurate* to the specific secondary power source as claimed in claims 1-16. In this respect, it is emphasized that the instant (claimed) secondary power source lacks significant, essential, vital and/or crucial features, for

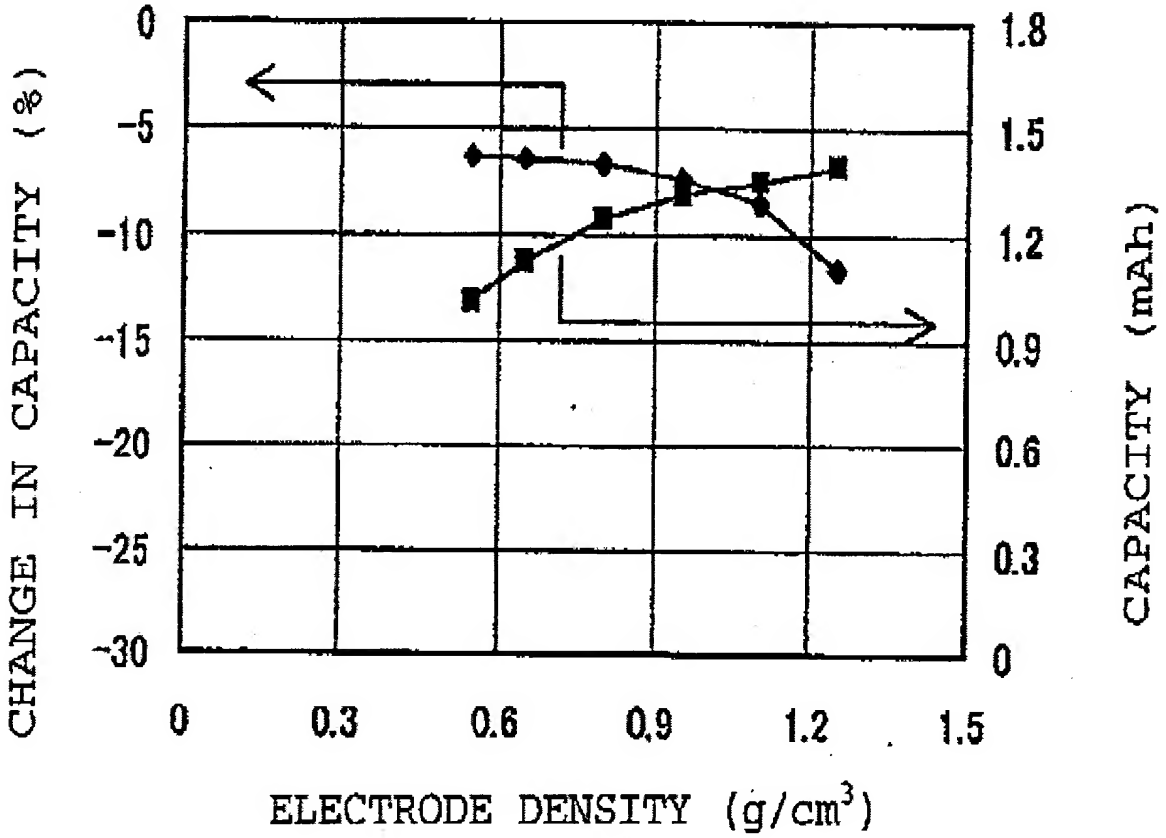
instance, the specific binder material, the specific conducting agent material, the specific current collector and its material, the specific electrolyte comprising both the salt and the solvent and the specific mass ratio of every single power source component as presented in EXAMPLES 1-7. Thus, the foregoing performance characteristics of the exemplified secondary power sources does not reflect or correspond to the performance characteristic of the claimed power source. *In this regard, it is further contended that the submission of objective evidence of patentability does not automatically mandate a conclusion of patentability in and of itself. Although the record may establish evidence of secondary considerations which might be indicia of nonobviousness, the actual record establishes such a strong case of obviousness that the objective evidence of nonobviousness is not sufficient to outweigh the evidence of obviousness. Accordingly, a prima facie case of obviousness cannot be simply rebutted by merely recognizing additional advantages or latent properties present in the prior art. Moreover, applicants must further show that the results were greater than those which would have been expected from the prior art to an unobvious extent, and that the results are of a significant and practical advantage. For example, it is noted that applicants have fairly argued that the specific negative electrode density somehow affects the capacity (its initial capacity and cycle capacity) of the power source (see page 5, last full paragraph and page 6, bridging paragraph and Figure 1 of the Request for Reconsideration After Final). However, it is further noted that Honbo et al clearly teach that if the negative electrode density is smaller than 0.95 g/cc, vacancies in the negative electrode are numerous and the specific surface area of the electrode is large, accordingly, a large amount of positive active material is precipitated on and inside the negative electrode and thus, the precipitated material decreases the capacity of the negative electrode significantly, and makes*

the cycle life short. On the other hand, if the negative electrode density is larger than 1.5 g/cc, the vacancies is too small to make electrolyte penetrate into the inside of the electrode, and therefore, the capacity of the negative electrode is decreased significantly, and the objective secondary lithium battery can not be obtained ***(Honbo et al US 6399251, col 4, lines 1-15).*** *Hence, since Honbo et al also teaches the criticality of the negative electrode density to the capacity of the power source, the unexpected properties of the claimed invention are not shown to have a significance equal to or greater than expected properties, and therefore, the evidence of unexpected properties is not sufficient to rebut the evidence of obviousness. Accordingly, although evidence has been presented in applicants' specification showing that particular negative electrode densities are effective, it has been concluded that these beneficial results would have been expected because one of the references (Honbo et al) is teaching that the specific negative electrode density is very efficient and provides better capacity results compared with other negative electrode densities.*

Furthermore, the objective evidence of nonobviousness is not commensurate in scope with the instant claims which the evidence is offered to support. For instance, it is noted that data of Figure 1 showing improved capacity and cycle reduction characteristics does not evidence unexpected results for the entire claimed range of 0.6-1.2 g/cc or 0.7-1.0 g/cc because as apparent from ***Figure 1*** *below, significant initial capacity of more than 1.2 mAh is reached at negative electrode densities greater than about 0.8-0.85 g/cc (not 0.6 g/cc or 0.7 g/cc as instantly claimed) and significant reduction in capacity of more than 7 % (assuming that 7 % is an acceptable reduction) are observed at negative electrode densities as low as about 0.9 – 0.95*

g/cc or higher (not 1.0 g/cc or 1.2 g/cc as instantly claimed). For that reason, it is contended that the objective evidence of nonobviousness is not commensurate in scope with the present claims.

FIG. 1



Likewise, it is also unclear whether or not the synergistic effect of having or not having combined (as instantly claimed) the specific binder materials, conducting agent materials, or current collectors materials, electrolytes and their specific molar amount and composition as exemplified in EXAMPLES 1-7 will definitely improve or deteriorate such capacity characteristics. However, even assuming that the synergistic effect of the foregoing specific

components and their molar amounts/compositions are neglectable (or constants as argued), it is constructively asserted that the expected results are not commensurate in scope with the claimed invention as it has not been possible to ascertain a trend in the exemplified data that would allow the skilled artisan to reasonably extend the probative value thereof.

In response to applicant's argument that "*Honbo teaches that specific density range of negative electrode material prevents the precipitation of Mn*" or "*Honbo teaches that the specific density range of negative electrode material is specific to the Li/Mn oxide composition of the positive electrode*", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In this regard, it is noted that Honbo et al teach a negative electrode active material characterized in containing carbon, and having a density in the range larger than 0.95 g/cc, and smaller than 1.5 g/cc. Thus, Honbo et al's teaching does clearly encompass the use of the negative electrode materials made of carbon and having the claimed density range regardless of the chemical environment of the battery. Hence, Honbo et al directly teaches the use of carbon negative active material within the specified density magnitude. In this manner, the examiner impartially upholds and remarks that the cited reference is in the field of applicant's endeavor or, at least, it is reasonably pertinent to the particular problem with which the inventor is concerned.

As to the double patenting rejection for claims 11-12, it is contended that the instant claims were not amended to recite the specific constituents of the positive electrode and negative materials as well as the excluding legal language "consisting essentially of such materials" (as

argued by the applicants). Thus, in the examiner's opinion, the combined double patenting rejection still reads on the instant claims.

STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP 1700